Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A method for extracting a channel from a data stream using a modified fast convolution algorithm, said modified fast convolution algorithm consisting of a common-channel part followed by a channel-specific part, said channel-specific part comprising the steps of:

selecting a range of n Discrete Fourier Transform bins around the center frequency of the channel;

multiplying said bins with a frequency response;

performing an N_{IDFT}-point Inverse Discrete Fourier Transform on these n data points; and,

performing a signal processing step.

2. (Previously Presented) The method of claim 1, wherein

said common-channel part of said modified fast convolution algorithm comprises the step of performing a N_{FFT}-Point Fast Fourier Transform on overlapping blocks of said data stream.

3. (Currently Amended) ~~The method of claim 2,~~ A method for extracting a channel from a data stream using a modified fast convolution algorithm, said modified fast convolution algorithm consisting of a common-channel part followed by a channel-specific part, said channel-specific part comprising the steps of:

selecting a range of n Discrete Fourier Transform bins around the center frequency of the channel;

multiplying said bins with a frequency response;

performing an N_{IDFT}-point Inverse Discrete Fourier Transform on these n data points; and,

performing a signal processing step;

wherein said common-channel part of said modified fast convolution algorithm comprises the step of performing a N_{FFT}-Point Fast Fourier Transform on overlapping blocks of said data stream; and,

wherein said N_{FFT}-point Fast Fourier Transform in said common-channel part of said modified fast convolution algorithm is preceded by the steps of:

first, processing said data stream by a η% overlap block generator;

second, multiplexing said data stream to form a complex signal;

wherein said channel-specific part of said modified fast convolution algorithm further comprises the steps of:

a first step of performing extraction of said bins;

a second step of performing said multiplication of said bins with said frequency response;

a third step of performing an N_{IDFT}-point Inverse Discrete Fourier Transform on these n data points; and,

a fourth step of processing said digital data stream by a η% overlap block combiner.

4. (Currently Amended) The method of claim [[1]] 3, wherein said frequency response has a limited range.

5. (Previously Presented) The method of claim 3, wherein said η% overlap block generator

generates said blocks using an overlap/add process which chops said data stream into non-overlapping sections of length N_{FFT}* (1-η) and padded with N_{FFT}*η zeros to form a single block.

6. (Previously Presented) The method of claim 3, wherein said η% overlap block generator

generates said blocks using an overlap/save process which chops said data stream into a series of blocks of length N_{FFT}, each of which has an overlap with the previous block in the series given by a length of $N_{FFT}*\eta$.

7. (Previously Presented) The method of claim 3, wherein said η% overlap block combiner

processes said data stream using an overlap/add process wherein said blocks are overlapped with the previous block by a length equal to $N_{IDFT}*\eta$, the overlapping part of a block is added to the previous block's corresponding overlapping part to produce the output data stream.

8. (Previously Presented) The method of claim 3, wherein η% overlap block combiner

processes said data stream using an overlap/save process wherein said blocks are overlapped with the previous block by a length equal to $N_{IDFT}*\eta$, the overlapping parts of the blocks are discarded and said output data stream is formed from the non-overlapping parts of the blocks.

9. (Previously Presented) The method of claim 3, wherein said multiplexing step [[is]] further comprises the step of

producing a complex signal $z(t)=x(t)+j*y(t)$, where x(t) and y(t) are two consecutive blocks.

10. (Previously Presented) The method of claim 9, wherein y(t) is rotated.

11. (Previously Presented) The method of claim 3, wherein said N_{FFT}-point Fast Fourier Transform is a pipeline architecture with a power of 2.

12. (Previously Presented) A method for inserting a channel into a data stream, said method consisting of a modified fast convolution algorithm, said modified

fast convolution algorithm consisting of a channel-specific part followed by a common-channel part common to all channels, said channel-specific part comprises the steps of:

performing a signal processing step;

performing an N_{DFT}-point Discrete Fourier Transform on said stream;

multiplying said stream with a frequency response; and,

inserting a range of n Fast Fourier Transform bins around the center frequency of the channel.

13. (Previously Presented) The method of claim 12, wherein said common-channel part of said modified fast convolution algorithm comprises the step of performing a N_{IFFT}-point Inverse Fast Fourier Fast Transform on overlapping blocks of said data stream.

14. (Previously Presented) ~~The method of claim 13,~~ A method for inserting a channel into a data stream, said method consisting of a modified fast convolution algorithm, said modified fast convolution algorithm consisting of a channel-specific part followed by a common-channel part common to all channels, said channel-specific part comprises the steps of:

performing a signal processing step;

performing an N_{DFT}-point Discrete Fourier Transform on said stream;

multiplying said stream with a frequency response; and,

inserting a range of n Fast Fourier Transform bins around the center frequency of the channel;

wherein said common-channel part of said modified fast convolution algorithm comprises the step of performing a N_{IFFT}-point Inverse Fast Fourier Fast Transform on overlapping blocks of said data stream; and,

wherein said channel-specific part of said modified fast convolution algorithm comprises the steps of:

a first step of processing said digital data stream by a η% overlap block generator;

a second step of performing a Discrete Fourier Transform;

a third step of multiplying the result of said Discrete Fourier Transform with the filter frequency coefficients; and,

a fourth step of inserting said bins around the center frequency of the channel;

said common-channel part of said modified fast convolution algorithm further comprises the steps of:

de-multiplexing the output from said N_{IFFT}-point Inverse Fast Fourier Transform to form a real signal; and,

processing said digital data stream by a η% overlap block combiner.

15. (Currently Amended) The method of claim [[12]] 14, wherein said frequency response has a limited range.

16. (Previously Presented) The method of claim 14, wherein said η% overlap block generator

generates said blocks using an overlap/add process which chops said data stream into non-overlapping sections of length $N_{FFT}*(1-\eta)$ and padded with $N_{FFT}*\eta$ zeros to form a single block.

17. (Previously Presented) The method of claim 14, wherein said η% overlap block generator

generates said blocks using an overlap/save process which chops said data stream into a series of blocks of length N_{FFT}, each of which has an overlap with the previous block in the series given by a length of $N_{FFT}*\eta$.

18. (Previously Presented) The method of claim 14, wherein said η% overlap block combiner

processes said data stream using an overlap/add process wherein said blocks are overlapped with the previous block by a length equal to $N_{IDFT}*\eta$, the overlapping part

of a block being added to the previous block's corresponding overlapping part to produce the output data stream.

19. (Previously Presented) The method of claim 14, wherein η% overlap block combiner

processes said data stream using an overlap/save process wherein said blocks are overlapped with the previous block by a length equal to N_{IDFT}*η, the overlapping parts of the blocks are discarded and said output data stream is formed from the non-overlapping parts of the blocks.

20. (Previously Presented) The method of claim 14, wherein

said bins are inserted into said Inverse Fast Fourier Transform in a symmetrical way where $Z(k_{start}+k)=X(k)$ and $Z(N_{IFFT}-k_{start}-k)=X'(k)$, K_{start} being where the first bin of the channel is to be inserted and K is an integer from 0→N-1, said bins for a given channel given by X(0)→X(N-1) where X' (k) is the complex conjugate of X(k) and being inserted into said Inverse Fast Fourier Transform in the order X(0)→X(N-1).

21. (Previously Presented) The method of claim 14, wherein

said bins are inserted into said Inverse Fast Fourier Transform by $Z(k_{start}+k)=X(k)+jY(k)$ and $Z(N_{IFFT}-k_{start}-k)=X'(k)+jY'(k)$, K_{start} being where the first bin of the channel is to be inserted and K is an integer from 0→N-1, said bins for a given channel given by X(O)→X(N-1) where X' (k) is the complex conjugate of X(k) and being inserted into said Inverse Fast Fourier Transform in the order X(0)→X(N-1).

22-24. (Cancelled).

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